PLATE

The Canadian Entomologist.

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LEONARD SEPTIMUS McLAINE

Leonard S. McLaine, Dominion Entomologist and Assistant Director of Science Service, died following a heart attack at his summer home at Lake Bernard, near Ottawa, on the evening of July 20, 1943, in his fifty-seventh year.

He was born in Manchester, England, on June 27, 1887, and received his elementary and secondary education at Merton House School in North Wales and the Wilson Lyon School in New York City. He subsequently studied at Boston University and Massachusetts State College, and graduated from the latter institution with the degree of Bachelor of Science in 1910. Following his graduation he was appointed a Fellow in Zoology of the College, and after completing postgraduate studies was awarded the Master of Science degree in entomology and palaeontology in 1912. In 1912-13 he was employed as a deputy state nursery inspector in Massachusetts, until his appointment in the latter year to the position of Field Officer in charge of the brown-tail moth survey in the Division of Entomology, Dominion of Canada Department of Agriculture, with headquarters at Fredericton, N. B. In 1919, following the reorganization of the Division of Entomology under the late Dr. C. Gordon Hewitt's leadership, to the status of a branch with four major divisions, Mr. McLaine was transferred to Ottawa to serve as Chief of the newly established Division of Foreign Pests Suppression, and Executive Assistant to Dr. Hewitt.

Mr. McLaine was an able and enthusiastic administrator and under his direction the new division attained a high degree of efficiency and rendered much valuable service to Canadian agriculture. When, in 1923, the Destructive Insect and Pest Act Advisory Board was established, Mr. McLaine was appointed Secretary, and served in that capacity until 1942. His official duties included the administration of that Act and the direction of a large inspection staff stationed at various points throughout the Dominion. He was also named Secretary of the Federal Apple Maggot Advisory Committee, when that body was set up in 1933, to safeguard the apple export trade of Eastern Canada. On the reorganization of the Department of Agriculture on April 1, 1938, Mr. McLaine was appointed Chief of the newly established Plant Protection Division, which, in addition to the activities of the former Division of Foreign Pests Suppression, involved the administration of the Seed Potato Certification Service. On July 16, 1942, he was appointed Dominion Entomologist and Assistant Director of Science Service, in which position he had served in an acting capacity following the retirement of Dr. Arthur Gibson, on January 15, 1942.

Mr. McLaine was a frequent visitor to the United States in connection with plant inspection, plant quarantine, and insect control matters, and he won numerous friends among federal and state officials. He also visited the United Kingdom and several European countries in the course of his duties, and attended the Fifth International Congress of Entomology in Paris in July, 1932, as a Canadian representative.

Mr. McLaine was honoured by being elected President of the American Association of Economic Entomologists in 1936, and President of the Entomological Society of Ontario in 1936-37. He was also a Fellow of the American Association for the Advancement of Science, and a member of the Canadian Society of Technical Agriculturists, the Quebec Society for the Protection of

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Plants (President 1939) and the Ottawa Field Naturalists' Club. He was a charter member of the Professional Institute of the Civil Service of Canada and for many years took a prominent part in its activities, serving as Honorary Secretary-Treasurer (1927-28) and President (1930-31). He also represented the Institute on the Advisory Committee on Superannuation (1937-1943). Other indications of Mr. McLaine's public spirited zeal are his service as Councillor on the Council of the Village of Rockcliffe Park (1937-1943) and, in the wider field, as Honorary Secretary of the Canadian Institute of International Affairs (1941-43).

On May 23, only two months before his death, Mr. McLaine received the honorary degree of Doctor of Science from Massachusetts State College "in recognition of his accomplishments and meritorious service in the field of entomology." His death is a very great loss to entomology and to Canadian agriculture, and is very keenly felt by all those who were privileged to be associated with him.

Dr. McLaine is survived by his wife, Kathleen Meredith (nee Lett), and three children, Alan, Heather, and Peter.

The following is a list of publications by Dr. McLaine arranged in chronological sequence:

1914, The brown-tail and gipsy moths. Bull. No. 11, Dept. Agric., New Brunswick (with J. D. Tothill).

1915, Report of the campaign against the brown-tail moth. Ann. Rep., New Brunswick Dept. of Agric. (1914), pp. 84-85.

1916, Report of the campaign against the brown-tail moth. Ann. Rep., New Brunswick Dept. of Agric. (1915), pp. 85-88.
Rearing the parasites of the brown-tail moth in New England for colonization in Canada. Agric. Gaz., Can. Dept. Agric., 3:22-25.

1917, Report of the campaign against the brown-tail moth. Ann. Rep., New Brunswick Dept. of Agric. (1916), pp. 9-11.

1918, The introduction of the parasites of the gipsy and brown-tail moths into Canada. Proc. Ent. Soc. Nova Scotia, No. 3 (1917), pp. 74-76.
Report of the campaign against the brown-tail moth. Ann Rep., New Brunswick Dept. of Agric. (1917), pp. 55-59.
Report of the brown-tail moth survey, Nova Scotia, 1916-17. Ann. Rep., Nova Scotia Sect. Agric. (1917), pp. 65-69.

1919, The recovery in Canada of the brown-tail moth parasite, *Compsilura concinnata*. 49th Ann. Rep. Ent. Soc. of Ont. (1918), pp. 35-39 (with J. D. Tothill).
Report of the brown-tail moth survey. Ann. Rep., New Brunswick Dept. of Agric. (1918), pp. 120-123.
Report of the brown-tail moth survey, Nova Scotia, 1917-18. Ann. Rep., Nova Scotia Sect. Agric. (1918), pp. 61-67.
The European corn borer, *Pyrausta nubilalis* Hbn. Agric. Gaz., Can. Dept. Agric., 6:443-446.
The present situation of the brown-tail moth in Eastern Canada. 11th Ann. Rep. Que. Soc. Prot. Plants, 1918-19, pp. 29-32.
Plant importation and exportation in relation to Canada and the United States. Ann. Rep. Que. Pomological Soc., pp. 108-111.

1920, Report of the brown-tail moth survey. Ann. Rep., New Brunswick Dept. of Agric. (1919), pp. 81-82.
Report of the brown-tail moth survey, Nova Scotia, 1918-19. Ann. Rep., Nova Scotia Sect. Agric. (1919), pp. 45-50.
Two new amendments to the regulations under the "Destructive Insect and Pest Act". Agric. Gaz., Can., 7:644-646.
Two new and important pests recently found in Canada. Agric. Gaz., Can., 7:793-794.
The European corn borer infestation. Agric. Gaz., Can., 7:938.
The European corn borer. Crop Prot. Leaf., No. 13, Ent. Branch, Can. Dept. Agric. (with Arthur Gibson).

1921, Report of the brown-tail moth survey. Ann. Rep., New Brunswick Dept. of Agric. (1920), pp. 48-49.
Brown-tail moth report, Nova Scotia. Ann. Rep., Nova Scotia Sect. Agric. (1920), pp. 43-47.

The discovery of the European corn borer in Southern Ontario. 13th Ann. Rep., Que. Soc. Prot. Plants, 1920-21, pp. 51-53.
Recent amendments to the regulations under the "Destructive Insect and Pest Act". Agric. Gaz., Can., 8:525-527.

1922, The spread of the European corn borer in Southern Ontario. 52nd Ann. Rep., Ent. Soc. of Ont. (1926), pp. 26-28.
Report of the brown-tail moth survey. Ann. Rep., New Brunswick Dept. of Agric. (1921), p. 96.
Brown-tail moth report, Nova Scotia. Ann. Rep., Nova Scotia Sect. Agric. (1921), pp. 53-58.
Insect Legislation in Canada. Scien. Agric., 3:51-54.
Insect Legislation in Canada. Monthly Bull., Dept. Agric. California, XI: Nos. 8-9, pp. 596-597.
A brief resumé of nursery conditions in Holland, Belgium and France. Jour. Econ. Ent., 15:162-167.
The spread of the European corn borer in Southern Ontario. Jour. Econ. Ent., 15:227-231.
Recent amendments to the regulations under the "Destructive Insect and Pest Act". Agric. Gaz., Can., 9:240-243.
The gypsy moth situation in Canada. Rep. International Conference, Bull. 148, Dept. Farms and Markets, N. Y.
The European corn borer in southern Ontario. Agric. Gaz., Can., 9:22-24.

1923, Distribution of the European corn borer in Ontario during the summer of 1922. 53rd Ann. Rep., Ent. Soc. of Ont. (1922), pp. 10-13.
Brown-tail moth report, Nova Scotia. Ann. Rep., Nova Scotia Sect. Agric. (1922), pp. 47-54.
The distribution of the European corn borer in Ontario. Agric. Gaz., 10:31-33.

1924, Federal and provincial legislation as it affects the fruit grower. 55th Ann. Rep., Ont. Fruit Growers' Assoc. (1923), pp. 22-26.
The new regulations under the "Destructive Insect and Pest Act". 54th Ann. Rep., Ent. Soc. of Ont. (1923), pp. 27-36.
Brown-tail moth report, Nova Scotia. Ann. Rep., Nova Scotia Sect. Agric. (1923), pp. 49-54.

1925, The outbreak of the gypsy moth in Quebec. 55th Ann. Rep., Ent. Soc. of Ont. (1924), pp. 60-62.
Corn borer legislation in Canada. Jour. Econ. Ent., 17:147-149.
New regulations under the "Destructive Insect and Pest Act". Agric. Gaz., 11:20-23.
Brown-tail moth report, Nova Scotia. Ann. Rep., Nova Scotia Sect. Agric. (1924), pp. 52-56.
The outbreak of the gypsy moth in southern Quebec. 17th Ann. Rep., Que. Soc. Prot. Plants, pp. 32-34.
The oriental peach moth. Can. Hort., 48:176.
Report brown-tail moth survey, Nova Scotia, 1924-25. Ann. Rep., Nova Scotia Sect. Agric., pp. 54-58.
The status of the European corn borer in Ontario (1924). Jour. Econ. Ent., 18:95-98 (with H. G. Crawford).

1926, The gypsy moth situation in Quebec. 56th Ann. Rep., Ent. Soc. of Ont. (1925), pp. 67-69 (with S. H. Short).
A preliminary announcement on the outbreak of the European pine shoot moth. 56th Ann. Rep., Ent. Soc. of Ont. (1925), pp. 71-75.
The status of the European corn borer in Ontario (1925). Jour. Econ. Ent., 19:124-127 (with H. G. Crawford).

1927, The activities of the "Division of Foreign Pests Suppression". 57th Ann. Rep., Ent. Soc. of Ont. (1926), pp. 20-22.
The regulations dealing with the importation of plants. 21st Ann. Rep., Ont. Hort. Soc. (1926), pp. 47-49.
The European corn borer in Quebec. 19th Ann. Rep., Que. Soc. Prot. Plants, pp. 19-21.
Foreign pests suppression and the advisory board in Canada. Proc. West. Plant Quar. Board, Cal. Dept. of Agric., Special Pub. No. 73 (1926), pp. 45-49.
The status of the European corn borer in Canada (1926). Jour. Econ. Ent., 20:341-344 (with H. G. Crawford).
The plant inspection service of Canada. Jour. Econ. Ent., 20:453-457.

1928, The Mexican bean beetle in Ontario. 58th Ann. Rep.. Ent. Soc. of Ont. (1927), pp. 39-41.
The status of the European corn borer in Canada (1927). Jour. Econ. Ent., 21:86-89 (with H. G. Crawford).

1929, The spread and distribution of the satin moth in British Columbia. 60th Ann. Rep. Ent. Soc. of Ont., pp. 70-73 (with R. Glendenning).
The Mediterranean fruit fly situation in Florida. 60th Ann. Rep., Ent. Soc. of Ont., pp. 133-137.
The value of quarantines. Monthly Bull., Cal. Dept. Agric., 18:609-611.
The basis and aims of plant legislation. Jour. Econ. Ent., 22:449-453.
1930, The gypsy moth outbreak in southern Quebec. Jour. Econ. Ent., 23:38-41.
1931, The blueberry maggot situation in Canada. 61st Ann. Rep., Ent. Soc. of Ont. (1930), pp. 68-69.
A review of the European corn borer outbreak in Ontario. Jour. Econ. Ent., 31:512-517 (with L. Caesar).
1933, Protecting Pacific countries against invasion of insect pests: Canada. Proc. 5th Pacific Sci. Cong., 5:3567-3571.
1934, The relation of entomology to the Dutch elm disease. 64th Ann. Rep., Ent., Soc. of Ont. (1933), pp. 41-43.
The federal apple maggot advisory committee and its functions. 25-26th Ann. Rep., Que. Soc. Prot. Plants, pp. 67-69.
Changes in insect and pest legislation in Canada. Monthly Bull., Cal. Dept. Agric. 23:333-335.
1935, Precautions taken to prevent the importation of pests and diseases on exhibits for the World's Grain Exhibition, Regina, 1933. 65th Ann. Rep., Ent. Soc. of Ont. (1934), pp. 90-93.
1936, Recent developments in Canadian regulatory work. Jour. Econ. Ent., 29:766-771.
A new phase of insect distribution by means of flood waters. Can. Ent., 68:141.
1937, Developments in vacuum fumigation at the port of Montreal. 67th Ann. Rep., Ent. Soc. of Ont. (1936), pp. 15-17 (with H. A. U. Monro).
1938, Some notes on the gypsy moth eradication campaign in New Brunswick and the Japanese beetle preventive work. 69th Ann. Rep., Ent. Soc. of Ont., pp. 43-45.
1939, The use of hydrocyanic acid gas in the vacuum fumigation of broom corn under winter conditions. Jour. Econ. Ent., 32:94-98 (with H. A. U. Monro).
The "Destructive Insect and Pest Act" protects gladiolus importers. Ann. Rep., Can Glad. Soc., pp. 117-118.
1942, Japanese beetle situation. 72nd Ann. Rep., Ent. Soc. of Ont. (1941), pp. 8-9.
Entomology and plant protection in Canada since the outbreak of war. 18th Ann. Meet. of National Plant Board, Baltimore, Md., Oct. 12-14.
1943, The war activities of the Federal Division of Entomology and plant protection. 73rd Ann. Rep., Ent. Soc. of Ont. (1942), pp. 7-16.
The Japanese beetle. Can. Nat., 5:92-93.

W. N. Keenan,
C. R. Twinn.

SOME NEW AND POORLY KNOWN SPECIES OF COLEOPTERA, II*

BY W. J. BROWN,

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Blethisa catenaria n. sp.

Length 11.3 mm. Black, the head and pronotum feebly but distinctly bronzed, the elytra with feeble bronze and coppery reflections. Head behind the eyes finely, not closely punctate from side to side as in *julii* Lec. Pronotum a little more strongly transverse than in *julii;* its length equal to two-thirds its width; its lateral margins a little more strongly arcuate and the flattened and reflexed portions of the sides almost twice as wide as in *julii;* punctation as in *julii,* the disk punctate throughout except on an area on each side of the median line; posterior angles as in *julii,* obtuse but well defined; the depression within each posterior angle not limited externally by a carina as in *julii.* Elytra much as in *julii* but with the sides more strongly explanate and the strial punctures less strongly impressed; all intervals, except those of the lateral declivities, con-

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vex; the third and fifth intervals catenulate as in *julii*, the third intervals with six foveae on one elytron and eight on the other, the fifth intervals with four on one and five on the other.

Propleura closely punctate as in *julii*. Metasternal episterna virtually impunctate, much shorter than in *julii*, the anterior margin of each only a trifle shorter than the external margin. Posterior coxae and the antecoxal pieces of the metasternum impunctate and glabrous.

Holoype: ♀, near Fort Prince of Wales, Churchill, Man., July 1, 1937 (W. J. Brown); No. 5412 in the Canadian National Collection, Ottawa.

The elytral intervals and their foveae undoubtedly vary in this species much as in *julii* Lec. The species resembles *julii* but may be recognized, at least in the female sex, by the glabrous and impunctate posterior coxae and antecoxal pieces. In both sexes of *julii*, the inner portions of the posterior coxae and the adjacent portions of the antecoxal pieces are supplied with rather fine, dense punctures that bear long, reddish yellow hairs.

Haida keeni Keen

Haida Keeni Keen, 1897, Can. Ent. 29:285.

Both the generic and specific names of this staphylinid were validated, as manuscript names of Fauvel, by a figure and a brief note published by the Rev. J. H. Keen. The figure was made from specimens taken by Mr. Keen at Massett, Queen Charlotte Islands, and sent by him to Dr. James Fletcher. Three of these specimens are preserved in the Canadian National Collection. *Haida* belongs in the Omaliinae, and because of the form of its maxillary palpi, it falls near *Boreaphilus* Sahlb., *Coryphium* Steph., *Ephelinus* Ckll., and *Eudectus* Redt. in keys to the genera of that group. As *Haida* has never been described properly, the following is offered.

Length 3 mm.; the general form as figured by Keen (loc. cit.). Reddish brown; the elytra paler except at apex; this dark apical area not sharply delimited, occupying the apical quarter at the suture but extending almost to the middle on the sides. Body and appendages distinctly pubescent.

Head seven-tenths as wide as the pronotum; strongly contracted immediately before and behind the eyes which are therefore very prominent; rather strongly concave, the concavity extending from eye to eye and from the very indistinct ocelli almost to the anterior margin of the front; the elevated, anterior portion of the front impunctate and glabrous, the head elsewhere finely and densely punctate and pubescent; a deep, punctiform fovea on each side between the anterior portions of the eyes; other impressions lacking; anterior margin of the labrum strongly rounded. Antennae and maxillary palpi not as figured by Keen; the latter with only two distinct segments; the ultimate segment acicular, very small and indistinct; the penultimate strongly inflated, fully half as wide as long. Antennae stout, extending to the humeral angles of the elytra, slightly widened apically from the second segments; each first segment cylindrical, squarely truncate at apex and also at base except for a very slender stem; the other segments cylindrical rather than conical as figured by Keen; segments two, three, and four a little longer than wide; the three following about as long as wide; eight, nine, and ten distinctly transverse; each eleventh segment bluntly pointed, its width equal to two-thirds its length.

Pronotum four-fifths as long as wide, widest just before the middle; the apical and basal margins very feebly arcuate; the lateral margins entire, strongly arcuate anteriorly, very feebly sinuate in the basal third; anterior angles lacking, the posterior angles obtuse and moderately rounded. Pronotal disk rather strongly convex at middle, tending to flatten out on the sides, finely and densely punctate, the punctures much finer near the lateral margins; an extremely fine

carina extending from base to apex on the median line; a deep, punctiform fovea near each lateral margin at basal fourth.

Hind body widest at middle; the elytra slightly but distinctly longer than wide, twice as long as the pronotum, finely and closely punctured; the exposed portion of the abdomen three-fifths as long as the elytra, very finely punctulate, consisting of four dorsal and the extruded genital segments.

Legs lacking spines; each posterior tarsus with the first segment a little longer than the second, segments one to four gradually decreasing in length, the fifth segment a little shorter than the three preceding. Mesosternum not carinate.

Sphaerites politus Mann.

Sphaerites politus Mannerheim, 1846, Bull. Soc. Imp. Nat. Moscou, 19:514.
Sphaerites glabratus, Horn (1880, Trans. Amer. Ent. Soc., 8:247) and other American authors, not Fabricius.

Sphaerites politus Mann., based on material from Sitka, Alaska, was improperly placed as a synonym of the European *S. glabratus* (Fab.) by Horn who erred also in attributing sexual characters to the middle tibiae and posterior trochanters of the species. The middle tibiae do not vary either sexually or specifically, and the free apex of each posterior trochanter is a specific character of *politus*. The two species show similar sexual differences in size and in the form of the mentum. In *politus*, males measure from 4.5 to 5.2 mm. and females from 5.2 to 6.0 mm. In both species the mentum is perfectly flat and very strongly declivous in males; in females the mentum is not flattened and is declivous only in that it continues the convexity of the submentum. In both species, the phallus is enclosed in a capsular structure that bears a large lobe on each side. The two species may be compared as follows.

Apices of the posterior trochanters free. Head, pronotal sides, and pygidium more closely punctate; the punctures of the posterior femora very fine, rather indistinct. Lateral lobes of the genital capsule strongly arcuate. Southern Alaska to western Alberta and northern California..... .... *politus* Mann.

Apices of the posterior trochanters contiguous to the femora. Head, pronotal sides, and pygidium less closely punctate; punctures of the posterior femora much less fine, very distinct. Lateral lobes of the genital capsule feebly arcuate. Northern Europe..... *glabratus* (Fab.).

Microlipus uniformis (Mots.)

Charopus uniformis Motschulsky, 1859, Bull. Soc. Imp. Nat. Moscou, 32:405.
Microlipus uniformis (Motschulsky), Horn, 1872, Trans. Amer. Ent. Soc., 4:116; Fall, 1917, Trans. Amer. Ent. Soc., 43:78.

We have nine female specimens from Goldstream (near Victoria), British Columbia, which differ from females of *Microlipus moerens* (Lec.) of the San Francisco region in having the pronotum entirely greenish and which therefore satisfy the description of *uniformis*. As all the Goldstream specimens are similar in this regard, and as all descriptions of *moerens* state that the posterior pronotal angles are narrowly pale in that species, it appears that the color character is correlated with distribution and that *moerens* and *uniformis* are specifically or subspecifically distinct.

Anthocomus erichsonii Lec.

Anthocomus otiosus (Say), Erichson, 1840, Entomographein, 99 (not seen).
Anthocomus Erichsonii LeConte, 1852, Proc. Acad. Nat. Sci. Philadelphia, 6:165; Horn, 1872, Trans. Amer. Ent. Soc., 4:117; 1910, Blatchley, Coleop. Indiana, 842.
Malachius criddlei Brown, 1928, Can. Ent., 60:146 (*new synonymy*).

The holotype of *Malachius criddlei* Brown is inseparable from Pennsylvanian specimens of *Anthocomus erichsonii* Lec. In the Ottawa and Lake Erie

districts of Ontario, there occurs a species which differs from *erichsonii* only in having the pronotal sides very narrowly, rather than broadly, margined with reddish yellow. Except for these pale margins, it agrees well with the descriptions of *A. flavilabris* (Say) and *A. caeruleus* (Randall). The statements in the literature describing *Anthocomus* as having the antennae inserted anteriorly, the elytra similar in the sexes, and the anterior tarsi simple in males are incorrect as far as these species are concerned. In both, the antennae are inserted as in many species of *Malachius* Fab., the elytra are appendiculate in males, and in males the inner margin of the first segment of each anterior tarsus is produced to form a rounded lobe.

Attalus nigrellus (Lec.)

Acletus nigrellus LeConte, 1852, Proc. Acad. Nat. Sci. Philadelphia, 6:167.
Attalus nigrellus (LeConte), Horn, 1872, Trans. Amer. Ent. Soc., 4:122.
Microlipus falli Hopping, 1925, Can. Ent., 57:206 *(new synonymy).*

The holotype and male paratypes of *Microlipus falli* Hopping possess the tarsal characters of *Attalus* Er., and the species is, in fact, inseparable from *Attalus nigrellus* (Lec.). Although *nigrellus* has been recorded from the Lake Superior region only, it is widely distributed in the northern coniferous forests; the types of *falli* are from Merritt, British Columbia, and among our specimens from Quebec are some taken at Fort Mackenzie, which is situated on the Koksoak River in the Ungava region.

Eurypogon harrisii (Westw.)

Sclerodes Harrisii Westwood, 1862, Rev. et Mag. Zool., 14:374, pl. 16, fig. 1-8.
Sclerodes lineato-punctatus Westwood, loc. cit., p. 375 (validated as a synonym of *S. Harrisii*).
Eurypogon Harrisii (Westwood), LeConte, 1864, Ann. Soc. Ent. France, IV, p. XXXVIII of Bull. (as a synonym of *E. niger* Melsh.).

Authors have followed LeConte in considering *Eurypogon harrisii* (Westw.) a synonym of *E. niger* (Melsh.). In the original description (1846, Proc. Acad. Nat. Sci. Philadelphia, 2:309), *niger* is said to have the antennae "moderately serrate" and the elytra with the strial punctures "profound, close-set, the interstices fine." Under the *niger* label in the Melsheimer collection are two male specimens from Pennsylvania, and both agree with this description. The type of *harrisii* came from Massachusetts, and a figure accompanying its description shows the elytral intervals to be wider than the strial punctures, a character which identifies an eastern species that has been unrecognized by collectors. *E. harrisii* falls with *californicus* Horn in Horn's key (1880, Trans. Amer. Ent. Soc., 8:80), but the type specimen of the latter differs in having the body more elongate, the vestiture golden rather than dark brown, and the abdomen much more closely punctate. The eastern species may be separated by the following couplet. *E. harrisii* appears to be much more common than the other species.

Elytra with the strial punctures much wider than the intervals except at base. Antennae with the outer apical angles of segments 5 to 10 produced and acute in the male, not produced but subacute in the female. Aedeagus with the median lobe widened from the middle to apical third, the sides thence converging strongly before the bluntly pointed apex. "Can.", "Mass.", "Penn.", "D. C.", "Va.", South Carolina (Oconee Co.) ..... *niger* (Melsh.)

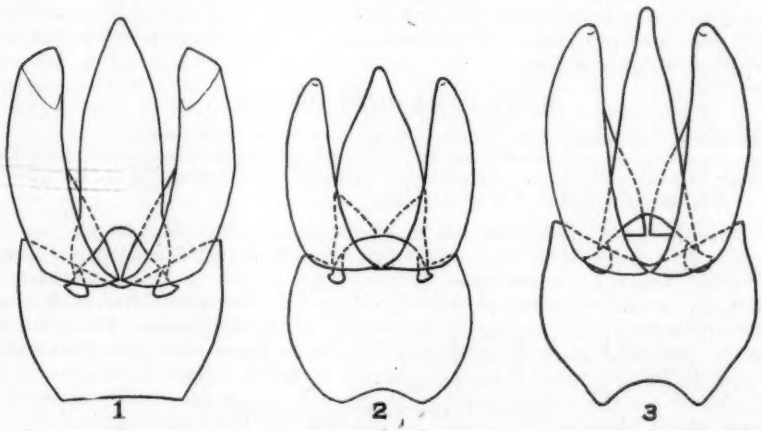
Elytra with the strial punctures much finer, the intervals wider than the punctures except on the sides. Antennae with the apical angles not produced, obtuse in both sexes; the antennae of the female more slender and less elongate than in *niger*. Aedeagus with the sides subparallel and converging very feebly before the more broadly rounded apex. Ontario (Biscotasing, Honey Harbor, Orillia, Brockville, Michipicoten

River), Quebec (Kazubazua), Michigan (Isle Royale), Massachusetts (Holyoke, Tyngsboro), New York (Catskill, New York City), New Hampshire (White Mts.), "Pa.", New Jersey (Greenwood Lake), "D. C.", Maryland (Plummer's Island), Virginia (Afton), North Carolina (Graybeard, Retreat), Tennessee (Greenbrier) ..... *harrisii* (Westw.)

Laricobius rubidus Lec.

Laricobius rubidus LeConte, 1861, Smithson. Misc. Coll., 198; 1866, Smithson. Misc. Coll. 167, 99. *Laricobius erichsonii*, LeConte and Horn (1883, Smithson. Misc. Coll. 507, 220) and other American authors, not Rosenhauer.

This species, described by LeConte originally in 1861 and at greater length in 1866, was improperly placed as a synonym of *erichsonii* Rosenhauer by LeConte and Horn in 1883. In *erichsonii* the coarse punctures of the head are considerably coarser than in *rubidus*, and the two differ also in characters of the male genitalia. The distributional pattern of the species suggest that they are distinct. *Erichsonii* is restricted to the Alps where it is said to occur on larch. *Rubidus* was described from the District of Columbia and has been recorded



Aedeagi of species of *Laricobius* Rosenh. 1, *L. rubidus* Lec. 2, *L. erichsonii* Rosenh. 3, *L. laticollis* Fall.

from Michigan, southern Quebec, and from several intermediate localities. It occurs commonly on white pine in the Ottawa district during late April and early May. *Laricobius laticollis* Fall was described from specimens found on Douglas fir at Seattle, Washington (1916, Bull. Brooklyn Ent. Soc., 11:14), and has been taken in British Columbia at Sanca by Mr. G. Stace Smith and at Salmon Arm by Mr. Hugh Leech. The types were described as having the elytra and pronotum uniformly testaceous or rufo-testaceous. Some of our Sanca specimens are darker, and in several the upper surface is very dark reddish brown. However, the species can always be distinguished from *rubidus* by color. In the latter, the thorax is black, and the elytra are red with the sutural intervals and the sides black. In *laticollis* the body is a trifle more robust, the pronotum is a little more strongly transverse, and the median lobe of the aedeagus (fig. 3) is more slender than in either of the other species. In *rubidus* the lateral lobes of the aedeagus (fig. 1) are obliquely truncate; in *erichsonii* the aedeagus (fig. 2) is relatively smaller and its median lobe is wider than in either of the American species.

Ptinidae

Study of the North American species, in connection with Dr. H. E. Hinton's paper on the Ptinidae of economic importance (1941, Bull. Ent. Research, 31:331-381), has shown that one species, *Mezium affine* Boiel., must be added to the North American list and that notes are desirable on the nomenclature of several others. Hinton reports that twenty-one species have been recorded as pests in various parts of the world. Fifteen of these are now known to occur in North America.

Mezium affine Boiel.

Mezium affine Boieldieu, 1856, Ann. Ent. Soc. France 4:674; Hinton, 1941, Bull. Ent. Research. 31:335, fig. 1.

Mezium americanum (Laporte), Brown, 1940, Can. Ent., 72:117; other American authors, in part.

Study of Hinton's figures and of the original descriptions has convinced me that all specimens from Canada, and many of those from the United States, which have been recorded as *Mezium americanum* (Lap.) should be referred to *affine* Boiel. I have seen *affine* from New York, N. Y., Boston and Framingham, Mass., Mt. Katahdin, Me., and Carbondale, Ill., as well as from several localities in Eastern Canada. Mr. W. S. Fisher has informed me that the collection of the U. S. National Museum shows that *affine* occurred in the United States as early as 1904, that most of the specimens from the Northeastern States should be referred to that species, and that *americanum* has a more southern distribution. He has sent me *americanum* from Columbus, Tex., and Crescent City, Fla., and Mr. C. A. Frost has taken that species at Edgewater, Fla.

The two species are separated by Hinton as follows:

Pronotum with tomentum so arranged that it appears to have a broad, shallow, median sulcus and a broad, feeble gibbosity on each side on basal half. Elytra with basal tomentose collar entire on each side..... ..... *affine* Boiel.

Pronotum with tomentum so arranged that it appears to have a broad, very deep, median sulcus and a broad, very prominent gibbosity on each side on basal half. Elytra with the basal tomentose collar deeply interrupted on each side .....*americanum* (Lap.)

Epauloecus unicolor (Piller & Mitterpacker)

This species is placed by Hinton (op. cit., p. 339) in the genus *Tipnus* Thomson, 1863. Thomson's usage is preoccupied by *Tipnus* Boieldieu, 1856 (Ann. Ent. Soc. France, 4:668), which is based on five species placed in *Sphaericus* Wollaston, 1854, by recent authors. For this season, *unicolor* must be referred to *Epauloecus* Mulsant & Rey, 1868, the type of which is *Ptinus crenatus* Fab., a synonym of *Ptinus unicolor* Pill. & Mitt.

Eurostus hilleri (Reit.)

Niptus Hilleri Reitter, 1877, Deutsche Ent. Zeit., 21:378.

Eurostus alienus Brown, 1940, Can. Ent., 72:119.

Eurostus hilleri (Reitter), Howe, 1940, Ent. Mo. Mag., 76:74; Hinton, 1941, Bull. Ent. Research, 31:343, fig. 9.

The above synonymy is from Hinton and appears to be correct.* The types of *alienus* have the prothoracic sides subparallel anteriorly, rather than fairly strongly convergent as is suggested for the species by Hinton's figure. The types of *hilleri* were taken in Japan, and according to Howe and Hinton, the species was found first in Great Britain in 1939 and is now widely distributed in granaries and warehouses there.

Ptinus ocellus Brown

Ptinus tectus Boieldieu, 1856, Ann. Ent. Soc. France, 4:652, in part.

Ptinus tectus of authors.

Ptinus ocellus Brown, 1929, Can. Ent., 61:109; 1940, Can. Ent., 72:120.

*Judging from the original description of *hilleri* which is inadequate; Hinton, unfortunately, does not give reasons for using the name *hilleri* for this species.

Hinton (op. cit., p. 357) rejects the name *ocellus* Brown and insists on applying the name *tectus* Boiel. to the present species. This, as I have already pointed out (1940), is contrary to Article 31 of the International Rules of Zoological Nomenclature, and the synonymy must stand as given above. There is no question of priority concerned in the writings of Boieldieu as is suggested by Hinton.

Ptinus hirtellus Sturm

Ptinus testaceous Olivier, 1790, Entomologie, II, 9, pl. 2, fig. 9 (not *P. testaceous* Thunberg, 1784).
Ptinus brunneus Duftschmid, 1825, Fauna Austriae, III, 65 (not *P. brunneus* Gmelin, 1790).
Ptinus hirtellus Sturm, 1837, Deutschl. Fauna (Insecten), XII, 80, tab. 258, fig. A.

According to Hinton (op. cit., p. 360), the species that has been known in North America by the preoccupied name *Ptinus brunneus* Dufts. must be known as *P. hirtellus* Sturm.

Nanophyes canadensis n. sp.

Length 1.6 mm.; width 0.9 mm. Robust and very strongly convex; viewed from above, the form as figured for the South African *pardus* by Marshall (1927, Trans. Ent. Soc. London, LXXV, pl. X, fig. 6); viewed laterally, the dorsal surface, from the apex of the rostrum to the apex of the elytra, forming an even and complete semicircle. Rostrum, head, prothorax, antennae, and legs pale red, the antennal clubs slightly darker; the elytra slightly paler, pale reddish yellow with the suture a little darker; mesosternum, metasternum, and abdomen black; the body strongly shining. Vestiture distinct but inconspicuous, consisting of fine, whitish hairs; these forming about three irregular rows on each elytral interval, sparser on the underside, not forming patches or spots on any part.

Head very indistinctly alutaceous. Rostrum four-fifths as long as the head and prothorax, feebly curved, alutaceous and feebly shining, very finely tricarinate, the antennal sockets situated at apical two-fifths; differing in the sexes as follows: apical half very slightly stouter in the male, the carinae extending beyond the antennal sockets in the male but not in the female, the portion distal to the antennal sockets alutaceous and subopaque in the male but polished and without evident sculpture in the female. Antennal funicle with the first segment stout, as long as the two following; the second segment a trifle longer than wide; the remaining segments transverse; the fourth segment slightly wider than the second, third, or fifth. Pronotum about twice as wide as long, the sides straight and converging strongly from base to apex; the punctures not coarse, moderately close, feebly impressed. Elytra with the humeral umbones rather prominent; the striae deep and indistinctly punctate; the intervals moderately convex, without evident sculpture. Underside without distinct sculpture; the fifth abdominal segment equal in length to the third and fourth together. Femora mutic.

Holotype: ♂, Brooks, Alta., June 2, 1938 (R. W. Salt); No. 4406 in the Canadian National Collection, Ottawa.

Allotype: ♀, Norway House, Man., June 22, 1938 (W. J. Brown).

Paratype: 1 ♂, Cypress Hills, Alta., June 26, 1927 (F. S. Carr).

The genus *Nanophyes* Schon. has been included in American catalogues on the basis of a few specimens from Louisiana, New Jersey, and Colorado which have been identified somewhat doubtfully as the European *pallidulus* (Grav.). That species, however, belongs to *Corimalia* Des Gozis which differs from *Nanophyes* in having the tarsal claws free. In *Nanophyes* the tarsal claws are connate at base, the trochanters are elongate as in *Apion* Hbst., the antennal funicle consists of five segments, and the ventral segments are very unequal.

FAUNISTIC NOTES ON THE DIURNAL LEPIDOPTERA OF THE BIG BEND REGION OF TRANS-PECOS, TEXAS, WITH THE DESCRIPTION OF A NEW *MELITAEA*

BY E. R. TINKHAM,

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This is one of a series* of papers on the insect life of the Big Bend Region of Trans-Pecos, Texas, in which the author plans to present a fairly complete picture of the insect and animal life of that little known region. The area is composed of Presidio and Jeff Davis Counties, the former mainly Lower Sonoran in its faunal affinities, the latter principally Upper Sonoran and partly Transitional. Each county has its own mountain system; Presidio County the Chinati Mountains and Jeff Davis County the Davis Range. The Chinatis are desert mountains; the Davis are forested with oaks and pines.

The southern part of Presidio County is composed of the mesquite valley of the Rio Grande and the cresote covered mesas sloping gently up towards the Chinati Mountains about 20 miles north of the Rio Grande. The lower slopes of the Chinatis are dominated by sotol (*Dasylirion texanum*), ocotillo (*Fouquieria splendens*), lechuguilla (*Agava lechuguilla*), spanish dagger (*Yucca macrocarpa*) and other plants. At higher elevations is found catclaw (*Acacia greggi*) and grasslands, with oaks and pinyons on the higher peaks. North of the Chinatis the vegetation changes into *Nolina texana* and *Yucca elata* with grasses and then merges into the Marfa grasslands. These grasslands extend finger-like into the valleys of the Davis Mountains where they merge with oak groves which in turn are replaced by pinyons and pines at higher elevations. This briefly is a sketch of the flora of the area. The oaks and grasslands represent the Upper Sonoran Fauna and merge imperceptibly with the pines of the Transitional Zone and the desert flora of the Lower Sonoran at lower elevations.

The butterfly fauna here reported is principally Lower Sonoran, although a few species are typically Upper Sonoran. It is not deemed practical to divide the butterflies into Upper and Lower Sonoran Faunas because of the wide-ranging habits of many of the species. The list presented is by no means complete for the region, but it is felt that the Lower Sonoran fauna is more completely represented than the Upper, because the Davis Mountains were not extensively collected. A few records, mainly of militaeas, made on the Shreve-Tinkham Expedition to northeastern Mexico in August-September of 1940 have been incorporated.

Before proceeding further, the writer wishes to thank Dr. J. McDunnough for examining the militaeas and certain of the hesperids. Some of the records are taken from the collection made by the Gottholt brothers of Marfa. An asterisk will be used to designate those species peculiar to the Upper Sonoran Zone. One new species is described.

1. *Danais plexippus* (Linnaeus). The monarch is a common species ranging over the entire United States.

2. *Danais berenice strigosa* Bates. This is a common species, especially during the rainy season in late summer and early fall. It prefers the arroyos or desert waterways where an abundance of flowers is to be found during the proper season.

3. *Dione vanillae* (Linnaeus). This beautiful butterfly is not common in the Big Bend region, perhaps because of the extreme aridity of the area.

4. *Euptoieta claudia* (Cramer). This common species ranges over all of North America into Southern Canada.

The genus *Melitaea* is one of the most characteristic of the lepidopterous

*1934, Can. Ent., 66:213-218 (the dragonfly fauna); 1935, Can. Ent., 67:207-211 (Mutillidae); 1938, Jour. New York Ent. Soc., 46:339-353 (Orthoptera attracted to light); 1941, Jour. New York Ent. Soc., 49:165-183 (Cicadidae); 1943, Can. Ent., 75.159-162 (a new species of *Pseudohazis*).

genera of the desert regions. Not only is there a fine array of species, but at the end of September when the summer rains have resurrected the desert into a flowery paradise, large numbers of many of the species flit from flower to flower, sport in the bright sunshine, or dash away on sudden gusts of wind. One of the commonest species is *definita* Aaron. Strangely enough there are no species of *Argynnis* or *Brenthis* in the region. Most species of *Melitaea* seem to have two generations a year, one in mid June, the other in late September, and perhaps one in early spring.

5. *Melitaea definita* Aaron. Chinati Mts., Texas, 1 ♂, 16,VI,29; 18 ♂, 11 ♀, 30,IX,29; 1 ♂, 1 ♀, 23,IX,29; 1 ♀, 22,VI,30 (E. R. Tinkham). Coahuila, Mexico, 12 miles NW. Saltillo, 2 ♂, Aug. 18, 1940 (E. R. T.).

This is undoubtedly the most abundant *Melitaea* species of the region. At the end of September in 1928 and 1929, large numbers of these butterflies were found frequenting a low yellow-flowering composite (probably *Pectis* sp.) growing in the foothills of the Chinatis at about 4400 feet elevation. In the fall of 1931, a drouth year, no butterflies were to be found. The Saltillo specimens extend the distribution of this species considerably southward. It undoubtedly will be found throughout the limestone hills and mountains of the Chihuahua desert in northeastern Mexico.

*6. *Melitaea minuta* Edwards. Paisano, Jeff Davis Co., 14 ♂, 3 ♀, 21,VI,30.

Paisano is situated in a pass by the same name in the Davis Mountains some 20 miles east of Marfa and at about 5100 feet elevation. It is the highest point on the Southern Pacific line in Texas. On the date collected, this species was fairly common on the rolling grasslands near Paisano with oaks and pinyons scattered about on the hillsides. This species is very easily confused with *M. arachne,* which, thanks to Dr. McDunnough's studies in 1916, was allocated to its proper territory in Colorado and *minuta* to Texas.

*7. *Melitaea theona thekla* Edwards (fig. 3). Chinati Mts. at 5500 feet, 3 ♂, 8,IX,29; 1 ♂, 23,IX,29.

This rare species was taken at considerable elevation in the Chinati Mountains, but not without hiking miles over rough terrain some six to seven miles west of Shafter. Its habitat is tall mountain grass, with some *Nolina* and clumps of *Agave lechuguilla.* Holland does not mention whether this species has been taken east of Arizona where it is supposed to be common, and these records are probably the first for Texas. The species appears to be a member of the Mexican Upper Sonoran Fauna. At lower elevations it is replaced by the following new species.

8. **Melitaea chinatiensis** n. sp. (figs. 1, 2)

This new species belongs to the *theona* group. It is a member of the Lower Sonoran fauna, whereas *M. theona thekla* is found at considerably higher elevations in the Chinati Mountains in the Upper Sonoran Zone. Its faunal separation, its distinctive coloration, and the fact that the entire series of eleven specimens is constant in markings, showing no intergradation with *theona thekla,* indicates that *chinatiensis* n. sp. is a distinctive species.

Type, ♂, Chinati Mountains, 4500 feet elevation, Presidio Co., Texas, September 30, 1929 (E. R. Tinkham); in the author's collection. Expanse 1.40 inches. Head and body coloration as in the *theona* group.

Primaries: Upper surface rich ochre brown, with heavy black marginal band fringed with white and marked with black hairs at the vein tips. Band with two faint spots in the median area and another near the apex; the band much heavier than in *theona thekla.* Costal margin heavily bordered with black, with an invasion of ochre brown in the limbal or postdiscal area reaching to the edge of the costal margin. A small submarginal apical spot (visible also below) that is not present in *theona thekla.* Veins of the fore wing heavily

lined with black, the orbicular spot in the end of the discal cell heavily edged within by a cross band of black, and without the basal area of the post discal veins heavily and broadly suffused with black. Under side of the primaries suffused with golden ochre, the ochre brown spots of the upper surface evident below as lighter markings. Marginal band of white cells heavily bordered with black, extending from the apex to the second last cell, whereas in *theona thekla* the band extends to the inner angle. The veins faintly lined with black, a distinctive apical submarginal spot of white.

Secondaries: Upper surface rich ochre brown, with the veins lined with black; the margin broadly and uniformly banded with black and having the

1, under surface (left half) of male paratype and upper surface (right half) of holotype of *Melitaea chinatiensis* n. sp. 2, under surface (left half) of female paratype and upper surface (right half) of allotype of *M. chinatiensis* n. sp. 3, Under and upper surface of male of *M. theona thekla* Edwards.

inner edge evenly and sharply defined. Fringe white, heavily marked with black at the vein tips. The disc marked by irregular cross lines of black. Under surface silvery white with the margins and veins uniformly lined with black and a small "U"-shaped marking of ochre brown finely edged with black in the outer half of the discal cell. A wide uniform submarginal band of ochre brown, bordered by black, occupies the limbal or outer third of the wing as in *theona thekla*, but in that species there is also a broad basal stripe of orange which is lacking in *chinatiensis* n. sp.

Allotype, ♀, same data as the type. Expanse 1.50 inches.

Primaries: As in the type but differing in the following minor respects: ground color not as intensive and uniform as in the type, with the orbicular mark in the end of the discal cell and the basal limbal area with buffy markings. Marginal band with five creamy colored, undefined spots extending from the apex to the median area. Under surface duller. *Secondaries*: Upper and lower surfaces as in the type, but the coloration less intense.

Paratypes, 2 ♂ and 4 ♀, same data as the type; 2 ♀ paratypes collected June 22, 1930. Male paratypes measure same as the type; the female paratypes range from 1.45 to 1.50 inches.

9. *Melitaea fulvia* Edwards. Chinati Mts., 1 ♂, 23,VI; 1 ♂, 4,VIII; 1 ♀, 30,IX; 1 ♀, 12,X,1929; 1 ♂, 22,VI; 3 ♂, 3 ♀, 15,VI,1930. Paisano, Jeff Davis Co., 1 ♂, 23,VI,1929. SW. Nuevo Leon, Mexico, 8 miles south of Galeana in open forest of *Pinus teocote*, 1 ♂, 30,VIII,40 (E. R. Tinkham).

This beautiful species is one of the rarer melitaeas of the region. It is a rapid and expert flyer, preferring the wind-swept limestone ridges for its sporting ground. One of the males collected August 4, 1929, is very dark on the upper surface, approaching *M. cyanea* in this respect. The Mexican record extends the range far southward into a region rarely visited by scientists.

10. *Melitaea dymas* Edwards. Chinati Mts., 5 ♂, 3 ♀, 30,IX,1929.

This is the smallest of the melitaeas and it is found slowly fluttering along the arroyos and small rocky hollows in the foothills of the Chinati Mountains

at about 4500 feet elevation. One or two of the males are heavily marked and in this respect resemble the variety *senrabii* Barnes.

11. *Melitaea ulrica* Edwards. Chinati Mts., 5 ♂, 3 ♀, 23,IX; 2 ♂, 3 ♀, 30,IX,1929 (E. R. T.). Coahuila, Mexico, 12 miles NW. Saltillo, 1 ♂, Aug. 18, 1940 (E. R. T.).

This species is common along the arroyos, seldom if ever being taken on the mountain sides. The food plant is believed to be *Baccharis glutinosa*. This species has been confused with *callina* Boisduval.

12. *Phyciodes picta* (Edwards). This species is common in grassy meadows and old oxbows in the Rio Grande Valley.

13. *Phyciodes vesta* (Edwards). This is another species found in habitats similar to those occupied by *picta*. The writer took two males 12 miles northwest of Saltillo, Coshuila, Mexico, on August 18, 1940.

14. *Anthanassa texana* (Edwards). This species is occasionally taken in the Chinati Mountains but it is nowhere common. One male was taken on the Coahuila-Zacatecas boundary, about 30 miles south of Gomez Frias in northeastern Mexico on August 23, 1940.

15. *Chlosyne lacinia adjutrix* (Scudder). In the fall of the year this is one of the commonest species in the Rio Grande Valley. I have found the spiny caterpillars in large numbers feeding on the rank-smelling composite, *Verbesina enceliodes*. Each generation requires about one month to complete the cycle; the pupal stage requires only seven to eight days. There are several generations alone in the autumn months; the species is thus multivoltic.

16. *Chlosyne crocale* (Edwards). This is not as common a species as the one above.

17. *Mestra amymone* (Menetries). Few butterflies fly with more beauty and grace than this delicate creature. The writer found it only along certain arroyos in the Chinati Mountains, especially those with dense growths of *Baccharis* along their margins such as the large Cibolo Arroyo running through Shafter.

18. *Polygonia interrogationis umbrosa* (Lintner). This is a rare species in the region and is represented by a single specimen in the author's collection.

19. *Aglais antiopa* (Linnaeus). The mourning cloak is another rare butterfly in the Rio Grande Valley, a single specimen having been seen on April 19, 1930. Specimens were seen in the Gottholt Collection from Marfa and the writer has seen it in El Paso.

20. *Vanessa atalanta* (Linnaeus). One specimen of this species was seen in the Gottholt Collection from Marfa.

21. *Vanessa virginiensis* (Drury). Occasionally a specimen of this species is taken in this region.

22. *Vanessa cardui* (Linnaeus). This ubiquitous species is common in this region. The writer has found it above timberline on many of the high peaks of the Southwestern States. Frequently the larvae assume a beneficial economic role by destroying large numbers of the thistles upon which this insect breeds.

23. *Junonia coenia* Hubner. The buckeye is frequently taken in the Chinati Mountains during the autumn months.

*24. *Anartia jatrophe* (Linn. & Johans.). The Gottholt Collection contains one specimen of this species from the Davis Mountains area.

*25. *Basilarchia astyanax* (Fabricius). One specimen taken by the writer is from Marfa.

*26. *Heterochroa bredowi californica* Butler. Specimens from the Davis Mountains are in the Gottholt Collection. This butterfly is a member of the oak

zone and appears to be found wherever oaks thrive in the Southwest. It is a common species in the oak canyons of the sierras of Southern Arizona such as the Santa Ritas, Santa Catalinas, and the Huachucas. This appears to be the first Texas record, as Holland does not report it east of Arizona.

27. *Asterocampa antonio* (Edwards). This is not an uncommon species wherever hackberry (*Celtis*) is found growing.

28. *Asterocampa texana* (Skinner). One specimen of this species is from Paisano east of Marfa.

*29. *Euptychia henshawi* (Edwards). This rare and delicate brown satyr is found under oaks on the north slopes of the Chinatis at about 5000-5500 feet elevation, and also in the Davis Range. The writer has taken the same species in similar oak environment in the Huachuca and Santa Rita Mountains of southeastern Arizona.

*30. *Euptychia rubricata* Edwards. The red satyr is another rare member of the oak zone occurring in the Chinati and Davis Mountains at higher elevations.

*31. *Cercyonis alope texana* (Edwards). A specimen of this variety of the common wood nymph was taken on the grasslands near Marfa.

*32. *Cercyonis meadi* (Edwards). This species is taken rarely at considerable elevations on oak and grassy mountain slopes in the Chinati Mountains.

33. *Libythea bachmanni* Kirtland. The snout butterflies breed on hackberry (*Celtis*), and at certain times of the year are seen in swarms flying out of the shade of small desert trees in which they hide from the heat of the summer sun.

34. *Libythea carinenta* (Cramer). This species is similar to the above, but appears to be distinguished by the shorter snout formed of the elongated palpi.

35. *Apodemia duryi* (Edwards). Chinati Mountains, 1 ♀, 30,IX,29.

This is a paler and larger species than the following and has been taken in the Chinati Mountains only at elevation of about 5000 feet.

36. *Apodemia cythera* (Edwards). Chinati Mountains, 1 ♂, 2 ♀, 23,IX,29.

This species is smaller and darker than *duryi* but is taken in the same general area as that species.

37. *Calephilis nemesis* (Edwards). A number of this diminutive species was taken in the Rio Grande Valley at Presidio. The species probably breeds on mesquite as the adults were taken on mesquite.

*38. *Thecla* (*Atlides*) *halesus* (Cramer). This brilliantly colored hairstreak is represented by a specimen in the Gottholt Collection from the Davis Mountains.

39. *Thecla* (*Habrodais*) *melinus* (Hubner). This is quite a common species in the Rio Grande Valley and is one of the few butterflies that has assumed an important economic rôle in eastern Texas where it is known as the cotton square borer. The larvae eat into the cotton square or bud, thus destroying the fruiting organs. It also feeds on lima beans, peas, beans, and a variety of other plants, but seldom does much damage.

*40. *Thecla* (*Strymon*) *polingi* Barnes and Benjamin. 1 ♂ topotype, Paisano, Jeff Davis County, July 16, 1930 (E. R. Tinkham). There is in the writer's possession a paratype of this species given him by the dean of American field naturalists, the late Mr. O. C. Poling, when the writer visited him at his home in Ft. Davis, Texas, on October 22, 1928. Mr. Poling passed away suddenly in the spring of 1929 and with him passed a world of information concerning the biologies of numerous rare Lepidoptera of the Southwest reared and bred by him but which were never penned and described for succeeding generations. His passing too was in many respects a reflection of his life, for correspondence with Mrs. Poling later revealed the sad fact that no entomologist or other scientist had endeavored to write a few lines in an obituary to his name.

The topotypic specimen was taken from oak trees which is undoubtedly the host plant of this rare species. Other specimens were seen at the time in the tops of small oak trees, but could not be captured.

There are undoubtedly other species of Theclinae in the region but which are not represented in this collection.

41. *Lycaena* (*Hemiargus*) *isola* Reakirt. This is a fairly common species on the mesas of the desert.

*42. *Lycaena* (*Zizera*) *cyna* Edwards. A specimen of this species from the Davis Mountains was given the writer by Mr. Poling. The author has also taken the species in Garden Canyon at the north end of the Huachuca Mountains in southeastern Arizona.

43. *Lycaena* (*Leptotes*) *marina* Reakirt. This is a fairly common species in the Rio Grande Valley.

44. *Lycaena* (*Brephidium*) *exilis* Boisduval. This the pygmy of the butterfly world, is abundant in the Rio Grande Valley. In the evening at about sundown a number of this species will always be found resting together in their favorite bush. The expanse of some specimens barely exceeds half an inch.

45. *Ascia monuste* Linnaeus. Stragglers of this soft, white creature have been taken occasionally at Marfa, where several rest in the Gottholt Collection.

46. *Pieris protodice* Bois. and Leconte. This butterfly is common in the region.

47. *Nathalis iole* Boisduval. This dainty little sulphur is common in the Rio Grande Valley and on the mesas of the desert.

*48. *Euchloe sara reakirti* (Edwards). Specimens of this species from the Marfa area are in the Gottholt Collection.

*49. *Anthocaris lanceolata* (Boisduval). This species has also been taken only by the Gottholt brothers.

50. *Callidryas eubule sennae* (Linnaeus). The large sulphur is more frequently seen than captured and is common in the autumn months around beds of flowers.

51. *Callidryas agarithe* Boisduval. A specimen or two of this large orange sulphur is in the Gottholt Collection from the Marfa region.

52. *Gonepteryx clorinde* (Godart). This giant, lovely, white butterfly is a rare straggler in the Big Bend Region, a single specimen being in the Gottholt Collection from Marfa. The wings are snowy white, with an orange, black-centered pupil at the end of the discal cell in all the wings. The fore wings are also falcate with a finger-tip of orange invading from the costal margin across the end of the discal cell to the center of the primaries.

53. *Kricogonia lyside terissa* Lucas. This butterfly is very rare in the Big Bend Region.

54. *Zerene caesonia* (Stoll). The southern dog-face butterfly is fairly common in the autumn months, especially in beds of flowers.

55. *Zerene caesonia* var. A variety in which the yellow wings are shot with iridescent purplish lights, is sometimes taken in the Rio Grande Valley and the valleys of the Chinati Mountains.

56. *Colias eurytheme* Boisduval. This is an abundant species in the region. The larvae often do considerable damage to alfalfa fields, especially in western Arizona and southern California in the Imperial Valley, where many broods occur during the year.

57. *Colias harfordi* Henry Edwards (?). In the Gottholt Collection there were specimens taken on the grasslands in the spring that looked similar to this species or a specimen of *pelidne* Boisduval. The size was small and the border

very narrow, but not having the specimens to study I can only give a tentative determination.

58. *Eurema necippe* (Cramer). Butterflies of the genus *Eurema* are very common in the South, *nicippe* being an abundant species in the Big Bend Region. The chrysalids are black, laterally compressed, with a deep keel-like prominence on the ventral side and are sometimes common, attached to dead desert vegetation which their black coloration closely resembles.

59. *Eurema mexicana* (Boisduval). The Mexican yellow is a common species of the region.

60. *Eurema lisa* (Boisduval and Leconte). The little yellow is another abundant species of the Rio Grande Valley and the Chinati Mountains.

61. *Papilio philenor* Linnaeus. The pipe-vine swallowtail is the commonest species of the region.

62. *Papilio polyxenes asterias* Cramer. This swallowtail is another common species.

63. *Papilio cresphontes* Cramer. The giant swallowtail is an uncommon visitor in the Big Bend Region, the writer having seen specimens from Presidio, Marfa, and the Chinati Mountains.

64. *Papilio daunus* Boisduval. This rare and magnificent species has been captured in Presidio.

65. *Papilio idaeus* Fabricius (=*pandion* Felder). It was the carefully executed drawing made by the writer in 1930 of a *Papilio* species in the Gottholt Collection at Marfa that enabled Dr. Holland to positively identify the species and record *Papilio idaeus* for the first time from the United States. It is an exceedingly rare straggler in the United States and is a member of the subtropical regions of Mexico and Central America.

66. *Epargeus tityrus* Fabricius. The silver-spotted skipper is a common species in the area under consideration.

67. *Eudamus proteus* (Linnaeus). Specimens of the long-tailed skipper are in the Gottholt Collection from the Davis Mountains region.

68. *Achalarus cacica* H. S. (=*epigona* H. S.). Dr. McDunnough considers *epigona* a synonym of *cacica*. The writer has a specimen of this skipper taken in the Chinati Mountains on June 28, 1930. This is perhaps a Texas record, for Holland states that this insect is common in Arizona and Mexico.

69. *Rhabdoides cellus* (Bois. and Leconte). The golden-banded skipper is not a common species in the region.

70. *Cogia hippalus* (Edwards). This is a rare skipper, the writer having taken the species only in certain valleys at about 5000 feet in the Chinati Mountains.

71. *Hesperia communis* (Grote). This common species has been generally known as *tessellata* in the literature.

72. *Celotes nessus* (Edwards). This small, mottled skipper was taken only in certain rocky canyons in the heart of the Chinati Mountains at elevations of about 5000 feet in the fall of the year.

73. *Systasea pulverulenta* (Felfer). One specimen of this peculiar hesperid was taken at Paisano on June 22, 1929, and another in the Chinati Mountains on September 30, 1929. Holland records the species from Mexico and northern Arizona, and these may well be the first Texas records.

74. *Pholisora catullus* (Fabricius). This skipper is fairly common in the Rio Grande Valley.

75. *Pholisora mejicanus* (Reakirt). This skipper is closely related to the one above and is not uncommon in the region.

76. *Pholisora alpheus* Edwards. This *Pholisora* is rarer than the two above species and is represented by a single specimen in the writer's collection.

77. *Thanaos tristis* Boisduval. A male and female of this species, identi-

fied by Dr. McDunnough, are from Presidio, collected in June and September, 1929. Holland reports this species from Arizona, California, and Mexico.

78. *Copaeodes aurantiaca* (Hewitson). This tiny, fiery-coppered skipper was identified by Dr. McDunnough from a female collected at Presidio on September 29, 1929. The species is not uncommon in the Chinati Mountains in September. These appear to be the first definite North American records, as Dr. Holland states in his book on page 368 that the species is known to him only through Mexican specimens. As has been stated before and amply proven by the writer's studies on Orthoptera, Odonata, etc., the Chinati Mountains are the extreme northern limit of a Mexican fauna; this same fauna is observable also in southern Arizona in the Baboquivaris, Santa Ritas, Tumacacoris, and Huachuca Mountains.

79. *Hylephila phlaeus* (Drury). The fiery skipper ranges over the entire New World and is one of the commonest species of hesperids in the foothills of the Chinati Mountains during the autumn months.

80. *Atalopedes campestris* (Boisduval). This, the only species of the genus in the United States, is not uncommon in the Chinati Mountains during the autumn months. The male fore wing is bright tawny, with a large central patch of erect brownish scales. The female is brownish, with a few lighter markings on the primaries, and does not resemble the male.

81. *Atrytonopsis pittacus* (Edwards). Several specimens of this species from the Chinati Mountains appear to be the first collected in Texas, as Holland gives the range as Arizona.

82. *Atrytonopsis python* (Edwards). This skipper is closely related to the above by having secondaries that lack the transverse row of four small white dots in the center of the wing. This appears to be another Texas record, as Holland gives Arizona alone as the distribution of this species.

83. *Prenes ocola* (Edwards). *Prenes ocola* is somewhat similar to the two above mentioned species of *Atrytonopsis*, but is darker brown and has fewer white spots on the primaries; the secondaries are unmarked.

84. *Megathymus mariae* Barnes and Benjamin. In the writer's collection there is a fine series of this species taken September 30, 1929, in the foothills of the Chinati Range at elevations of 4500 feet. At this time the specimens were newly emerged, and they could be heard as they dashed about as gray streaks on the mountain side. They were exceedingly difficult to capture and, despite every precaution, usually knocked off their fringes and became slightly worn before they were dead in the cyanide jar. When alighted they invariably rested on lechuguilla or on a bit of flat limestone rock near their favorite plant. This species lays its eggs on lechuguilla (*Agave lechuguilla*), and the following summer the larvae reach their maturity within their host but not without killing the plant. It is not an uncommon sight to see considerable dead lechuguilla about on the limestone ledges, these having all been killed by *Megathymus*. *M. mariae* was described from El Paso, undoubtedly from the Franklin Mountains just north of the city. On these mountains lechuguilla grows abundantly, and here the species breeds just as it does in the Chinati Mountains, several hundreds of miles down the Rio Grande Valley.

NOTES

THE PRESENT STATUS OF THE APPLE MEALYBUG, *PHENACOCCUS ACERIS* SIG. IN BRITISH COLUMBIA AND NOVA SCOTIA

In a recent article dealing with the apple mealybug, *Phenacoccus aceris* Sig., Rau (1942) states that in the Kootenay district of British Columbia "spraying operations have not been very successful in controlling the insect." He does not mention the type of sprays employed in British Columbia but remarks that in Holland partial control is secured by 5 per cent "carbolineum" and that good results are said to have followed the painting of infested trees with 5 per cent "soap" and 5 per cent "spirits" in water. He credits nicotine sulphate, derris and oil emulsions with control of the insect in Japan.

The writer (1942) has pointed out that in British Columbia, thorough application of 6 per cent diesel oil of approximately 45 S.S.U. viscosity, or 4 per cent dormant petroleum oil of approximately 110 S.S.U. viscosity, has provided adequate commercial control. Two dinitrophenol derivatives, namely sodium dinitrocyclohexylphenate and sodium dinitrocresylate have been found very toxic to the apple mealybug when applied in aqueous solution. The parent compounds of these salts proved effective in oil solution. Because of these results, the apple mealybug is no longer regarded as a particularly serious pest in the Kootenay district.

Rau might have mentioned that the late A. A. Dennys supplied him with collections of material and on several occasions wrote him at length on the biology of the insect in British Columbia. As a matter of fact, with the exception of Gilliatt in Nova Scotia, Dennys probably was more familiar with the biology of the apple mealybug than any other entomologist in North America.

During the first half of the 1930's the apple mealybug was of considerable economic importance in apple orchards in the Annapolis Valley of Nova Scotia, and a few serious infestations were noted in 1937 and 1938 near Bridgewater, Lunenburg County. However, during the last five or six years there have been few instances of serious damage. This has been attributed largely to the activities of the parasite *Allotropa utilis* Muesebeck, which can usually be found in mealybug infested orchards, and also to the satisfactory spray control program developed by the Dominion Entomological Laboratory, Annapolis Royal, N. S. Rau appears to have overlooked the paper by Patterson (1936) which outlines methods for the control of this insect in Nova Scotia. Over a period of years growers have found the 3 per cent dormant oil (210 Sec. Saybolt Univ.) emulsion a satisfactory spray provided it is applied before the mealybug has developed a heavy cottony covering. The summer underleaf spray of nicotine sulphate recommended by Patterson is efficient also, provided satisfactory coverage is obtained.

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GENOTYPE TANGLES

I was much interested in Capt. Riley's able article on "Misidentified Genotypes" which appeared recently in the *Entomological News* (1942, Vol. LIII, p. 45) and in which the author clarifies a certain poorly worded and rather ambiguous phrase in Opinion 65 of the International Committee on Zoological Nomenclature.

I am thoroughly in accord with Capt. Riley's expressed opinion that, in cases where it can be *clearly proven* that a designated genotype is based on a misidentification, the *species* which the designator considered as representing this name must then become the genotype and not the mere *name* itself. This latter "arbitrary practice", as it is designated by Capt. Riley, has unfortunately been followed by some of our younger North American Lepidopterists, notably Benjamin, who, in the preface to the 1926 Check List of Diurnal Lepidoptera of Boreal America, frankly states that in certain cases he has considered "a specific name rather than a specific organism as the genotype."

A flagrant example of the confusion resulting from the application of this method has just been published in an article by J. G. Franclemont on the "Identity of *Glaea pastillicans* Morr." (1943, Ent. News, LIV, 92). The species *pastillicans* Morr., following the generally accepted determination of the time, was designated by Hampson as the genotype of his new genus, *Harpaglaea* (1906, Cat. Lep. Phal. Brit. Mus., VI, 429), which he separated from *Epiglaea* Grote, both in his generic key (op. cit. pp. 3 and 4) and in his generic diagnosis (p. 430) on the strength of "five curved claw-like spines on outer side of 1st joint" of fore tarsi. Franclemont now claims — whether rightly or wrongly I am unable to judge at the moment — that, based on the original description, the type specimen being lost, *pastillicans* had been misidentified by the older entomologists and that it really should be placed as a synonym of *apiata* Grt. which Grote had designated (1895) as the genotype of *Epiglaea* Grt. He therefore sinks the genus *Harpaglaea* Hamp. to *Epiglaea* Grt. and we have the anomaly of the genus stated by its author as possessing spines on the first joint of the fore tarsi being synonymized with a genus in which such spines do not occur. Franclemont then goes ahead and erects a new genus, *Chaetaglaea*, for the species possessing such spines, thus complicating the matter still further.

If one accepts Franclemont's reference of *pastillicans* Morr. to *apiata* Grt. as correct, the *pastillicans* of Hampson can be readily recognized without any undue effort; this identity is obvious from Hampson's text, his figure on page 431, and from Franclemont's own admission on page 98 of his article where the species is placed in the synonymy of *tremula* Harv. This being the case and following Riley's interpretation of the rules *Harpaglaea* Hamp. with *Chaetaglaea* Franc. as a synonym, and with *tremula* Harv. (*pastillicans* Hamp. nec Morr.) as genotype should to my mind be resurrected for the "Glaeine" species in which fore tarsal claws are present.

In conclusion may I express the hope that the attention of the newly formed American Commission on Scientific Nomenclature in Entomology may be drawn to this matter and that an authoritative statement of their views on this mooted point may be hoped for without too long a delay.

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